REMARKS

At the time the present Office Action was mailed (November 23, 2005), claims 26-38 and 42-90 were pending in the above-captioned application, with claims 42-48 and 84-90 withdrawn from consideration. In this response, claims 42-48 and 62-90 have been cancelled. Accordingly, claims 26-38 and 49-61 are currently pending.

In the November 23, 2005 Office Action, all the pending claims were rejected. More specifically, the status of the application in light of the November 23, 2005 Office Action is as follows:

(A) Election of claims directed to either an apparatus or a process was required;

(B) The drawings were objected to on the basis of an informality;

(C) Claims 71, 72 and 78 stand rejected under 35 U.S.C. § 112, second paragraph;

(D) Claims 62-64, 66-71, 73-78 and 81-83 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,126,798 to Reid ("Reid");

(E) Claims 62, 63, 66, 68-72, 74-77 and 81-83 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,261,426 to Uzoh ("Uzoh");

(F) Claim 73 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Uzoh in view of U.S. Patent No. 6,635,157 to Dordi ("Dordi");

(G) Claims 53-61, 64-65, 67 and 78-80 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Uzoh in view of Reid; and

(H) Claims 26-38 and 49-83 stand rejected on the ground of nonstatutory obviousness-type double patenting.

A. Response to the Required Claim Election

Applicants affirm election of claims 26-38 and 49-83. Claims 42-48 and 84-90 have been cancelled, without prejudice to pursuing these claims in a divisional or other application.

B. Response to the Objection to the Drawings

Figure 1 was objected to because the reference character "165" was used to designate both the space formed between the electrode housing assembly and the process cup assembly, and a fluid outlet tube. Figure 1 has been corrected to change the reference character designating the space between the electrode housing assembly and the process cup assembly to be "166," as reflected in the corrected drawing sheet. The specification at page 15, last paragraph has been amended in accordance with the foregoing drawing change.

C. Response to the Section 112 Rejections

Claims 71, 72 and 78 were rejected under 35 U.S.C. § 112, second paragraph. These claims have been cancelled. Accordingly, the Section 112 rejections of these claims are now moot.

D. Response to the Section 102 Rejection on the Basis of Reid

Claims 62-64, 66-71, 73, 78 and 81-83 were rejected under 35 U.S.C. § 102(e) as being anticipated by Reid. Without commenting on or conceding the merits of these rejections, and without prejudice to pursing these claims in a continuation or other application, the foregoing claims have been cancelled. Accordingly, the Section 102 rejections of these claims are now moot.

E. Response to the Section 102 Rejections on the Basis of Uzoh

Claims 62, 63, 66, 68-72, 74-77 and 81-83 were rejected under 35 U.S.C. § 102(e) as being anticipated by Uzoh. Without commenting on or conceding the merits of these rejections, and without prejudice to pursing these claims in a continuation or other

application, the foregoing claims have been cancelled. Accordingly, the Section 102(e) rejections of these claims are now moot.

F. Response to the Section 103 Rejection on the Basis of Uzoh and Dordi

Claim 73 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Uzoh in view of Dordi. Claim 73 has been cancelled, without commenting on or conceding the merits of this rejection, and without prejudice to pursing this claim in a continuation or other application. Accordingly, this Section 103 rejection of claim 73 is now moot.

G. Response to the Section 103 Rejections on the Basis of Uzoh in View of Reid

Claims 53-61, 64, 65, 67 and 78-80 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Uzoh in view of Reid. Claims 64, 65, 67 and 78-80 have been cancelled, without commenting on or conceding the merits of the rejections of these claims, and without prejudice to pursing these claims in a continuation or other application. Accordingly, the Section 103 rejections of these claims are now moot.

Claim 53 is directed to a reactor for electrochemically processing a microelectronic workpiece. The reactor includes a chamber having a processing space configured to receive a processing fluid, at least one fluid inlet positioned to provide a flow of processing fluid to the processing space, and a workpiece support positioned to carry a microelectronic workpiece in contact with the processing fluid in the processing space. The workpiece support includes at least one conductive member disposed to electrically contact the microelectronic workpiece. The reactor further includes an electrode support positioned in fluid communication with the processing space and configured to carry an electrode. A permeable membrane is positioned between the electrode support and the workpiece support. A porous flow distribution element is positioned between the permeable membrane and the workpiece support, and a shield is positioned between the flow distribution element and the workpiece support.

Uzoh discloses in Figure 1 an apparatus that includes a cylindrical container or cup 14, a counterelectrode 4 carried in the cup, a baffle 8 positioned above the counterelectrode 4, a shield 10 positioned above the baffle 8, and a wafer 12 positioned above the shield 10. The purpose of Uzoh's arrangement is to provide "uniformity of deposition or etching . . . particularly at the edge of the target film, by baffle and shield members through which the bath passes as it flows toward the target" (Uzoh at column 2, lines 5-8).

Reid discloses in Figure 2 an electroplating apparatus that includes a vessel carrying a plating bath, an anode cup 202 disposed in the bath and carrying an ion source material 206, and a membrane 208 positioned over the open top of the anode cup 202. The membrane 208 is sealed against the edges of the anode cup 202 and against an interior tube via O rings 316, 318 and seal rings 312, 314.

The purpose of Reid's membrane 208 is to form a "high electrical resistance which produces a voltage drop across the membrane 208," and "advantageously minimizes variations in the electrical field from ion source material 206 as it dissolves and changes shape" (Reid at column 5, lines 46-53). Reid further discloses that "by providing electrically resistive membrane 208, the relatively high electrical current from this region of ion source material redistributes over a larger area to find the path of least resistance through the membrane 208" and "improves the uniformity of the electric current flux to the wafer which, in turn, improves the uniformity of the deposited electrically conductive layer" (Reid at column 5, line 62-column 6, line 2). The "porosity of the membrane 208 prevents large size particulates" generated by ion source material 206 "from passing through membrane 208" (Reid at column 6, lines 9-11).

The Office Action states that it would have been obvious to one of ordinary skill in the art to have incorporated Reid's anode assembly and ionic membrane into Uzoh's electroplating apparatus. This argument is based on hindsight reasoning. As stated in C. R. Bard Inc. v. M3 Systems Inc., 48 U.S.P.Q.2d, 1232 (Fed. Cir. 1998), "It is insufficient

that prior art shows similar components, unless it also contains some teaching, suggestion or incentive for arriving at the claimed structure." As stated by the court in In re Sernaker, 217 U.S.P.Q. 1, 6 (Fed. Cir. 1983) in discussing an earlier case, "the lesson of this case appears to be that prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings."

Applicants submit that, as in the C. R. Bard case and the Sernaker case, claim 53 is nonobvious over the applied references because there is nothing in the references that would suggest the combination of a permeable membrane, a porous flow distribution element, and a shield positioned in sequence between an electrode support and a workpiece support. This is so for at least the following reason. Uzoh's apparatus includes a baffle and a shield that, as discussed above, are configured to improve the uniformity of deposition or etching, particularly at the edge of the target film. Accordingly, Uzoh's apparatus, as stated by Uzoh, addresses deposition or etching uniformity. Nothing in Uzoh would suggest further adding Reid's membrane 208. Furthermore, while the Office Action states that it would have been obvious to substitute Reid's anode and membrane arrangement for Uzoh's, there is no suggestion whatsoever in Uzoh to make this substitution. In fact, Uzoh's disclosure indicates that his depicted apparatus adequately addresses the uniformity issues that his invention is intended to address, and therefore would not require the addition of a membrane (see Uzoh at column 6, line 21-24, stating "In general, a uniform hole baffle 8 gives acceptable thickness variation when the initial metal film thickness is 1000Å-1500Å or more and the plated thickness is on the order of one micron or more.").

There is also nothing in Reid's disclosure that would suggest combining his elements and Uzoh's elements to arrive at the features of claim 53. For example, assuming for the sake of argument that Reid's membrane 208 corresponds to the membrane of claim 53, Reid fails to disclose or suggest "a porous flow distribution element positioned between the permeable membrane and the workpiece support," as recited in

claim 53. Nothing in Reid's disclosure would suggest adding this element from Uzoh's arrangement. Furthermore, Reid's seal rings 312, 314 are positioned to seal the membrane against the edges of the cup 202 and against an interior tube, but do not form a shield, and Reid fails to disclose or suggest adding such a shield. Accordingly, neither Uzoh nor Reid provide the requisite suggestion, incentive or teaching for the combination included in claim 53.

For at least the foregoing reasons, the Section 103 rejection of claim 53 should be withdrawn. Claims 54-61 depend from claim 53. Accordingly, the Section 103 rejections of these claims should be withdrawn for the foregoing reasons and for the additional features of these dependent claims.

H. Response to the Double Patenting Rejections

Claim 26-38 and 49-52 were rejected on the grounds of nonstatutory obviousness-type double patenting in light of U.S. Patent No. 6,368,475. Claims 53-83 were rejected on the same basis in light of U.S. Patent No. 6,368,475 in view of Uzoh. Without commenting on or conceding the merits of these rejections, applicants enclose herewith a terminal disclaimer with respect to U.S. Patent No. 6,368,475. Accordingly, the double patenting rejections of claims 26-38, 49-52 and 53-61 should be withdrawn. Claims 62-83 have been cancelled and accordingly, the double patenting rejections of these claims are now moot.

In view of the foregoing, the pending claims comply with 35 U.S.C. § 112 and are patentable over the applied references. The applicant accordingly requests reconsideration of the application and a Notice of Allowance. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-3257.

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Respectfully submitted,

By _____

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Attachments

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings (formalized version) include changes to Figure 1, which has been amended to change one of the two occurrences of reference numeral "165" to "166."

Attachment: Formal Drawings including Replacement sheet for Figure 1
Annotated sheet showing changes

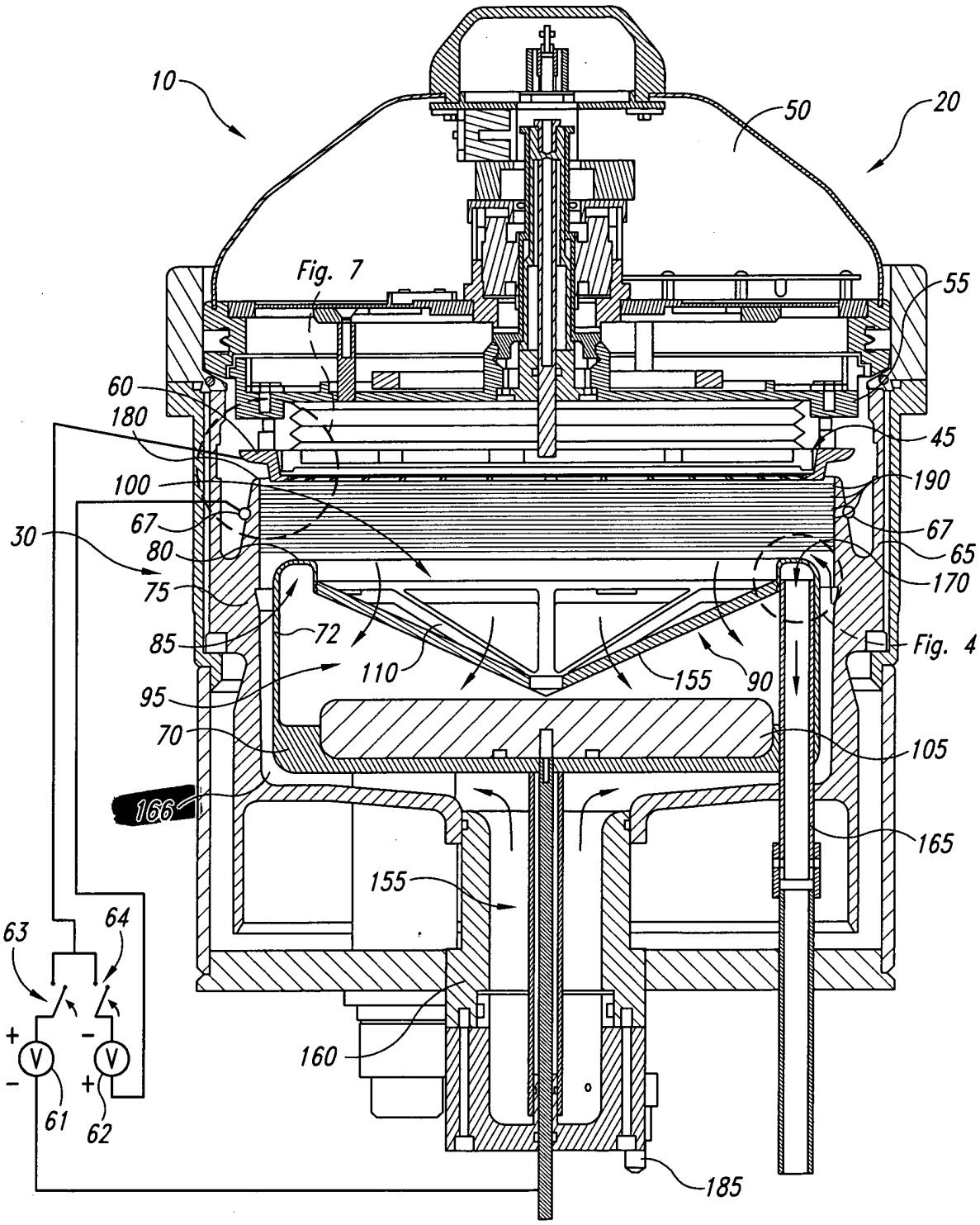
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Fig. 7
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Fig. 4
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Fig. 1